



Picture of the Week: Shedding light on climate change

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Shedding light on climate change

West Antarctica is one of the most rapidly warming regions on Earth, but its remote location and inhospitable climate make gathering atmospheric observations a challenging proposition. That didn't deter technical experts from Los Alamos' Earth and Environmental Sciences Division's Field Instrument Deployments & Operations Team (FIDO). They recently trekked to McMurdo Station at the southern tip of Antarctica's Ross Ice Shelf to install some of the most advanced atmospheric research instrumentation for making observations of clouds, radiation, and aerosol particles. Using the multi-disciplinary capabilities of Los Alamos National Laboratory, the FIDO Team supports cutting-edge climate science by customizing and deploying suites of instrumentation to best address specific research goals in a variety of under-sampled regions around the world.

Using data from this portable observatory, researchers from the Atmospheric Radiation Measurement (ARM) Climate Research Facility hope to develop a comprehensive explanation for the warming of the West Antarctic Ice Sheet. They will also study the impact of warming on global sea-level rise. In this photo, the bright green line of the research station's lidar laser beam provides a man-made contrast to the ethereal glow of the Aurora Australis' polar lights. Lidar, or *light detection and ranging*, is a remote sensing method that uses a pulsed laser to measure distances. ARM researchers use high-spectral-resolution lidar to characterize clouds and small particles (aerosols) in the atmosphere.

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The FIDO team deployed the Atmospheric Radiation Measurement (ARM) West Antarctic Radiation Experiment (AWARE) for ARM's Climate Research Facility, a national scientific user facility managed by the U.S. Department of Energy (DOE) Office of Science.

To learn more about AWARE and ARM's other climate research campaigns deployed around the world, visit www.arm.gov/sites/amf/awr. For more information or to inquire about field instrument deployment capabilities and upcoming campaigns, contact Kim Nitschke at nitschke@lanl.gov.

Photo courtesy of Joshua Swanson, United States Antarctic Program.

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